

## IN THE CLAIMS

What is claimed is:

- 1 1. A computer software product having one or more recordable medium having  
2 executable instructions stored thereon which, when executed by a processing  
3 device, causes the processing device to:  
4 generate, from a first property, a first assumption including a first state  
5 predicate;  
6 generate, for a model, a first transition relation that includes the first state  
7 predicate; and  
8 reduce the first transition relation according to the first assumption.
- 1 2. The computer software product recited in Claim 1 wherein reducing the first  
2 transition relation reduces the size of the model.
- 1 3. The computer software product recited in Claim 1 wherein reducing the first  
2 transition relation reduces the computational complexity of evaluating the first  
3 property.
- 1 4. The computer software product recited in Claim 1 wherein reducing the first  
2 transition relation reduces the number of variables in the model.
- 1 5. The computer software product recited in Claim 1 wherein reducing the first  
2 transition relation reduces the number of variables in the first transition  
3 relation.
- 1 6. The computer software product recited in Claim 1 wherein the first  
2 assumption is generated from an implication structure of the first property.

1 7. The computer software product recited in Claim 6 which, when executed by a  
2 processing device, further causes the processing device to:

3 propagate the first assumption to generate a second assumption  
4 according to a second property.

1 8. The computer software product recited in Claim 7 wherein the second  
2 property is a sub-property of the first property.

1 9. The computer software product recited in Claim 7 wherein the second  
2 property is to be evaluated under the first assumption.

1 10. The computer software product recited in Claim 7 wherein the first  
2 assumption is propagated only one transition stage to generate the second  
3 assumption.

1 11. A verification system comprising:

2 means for producing, from a first property, a first assumption including a  
3 first state predicate; and

4 means for producing a reduced next state function from a first next state  
5 function involving the first state predicate by applying the first assumption.

1 12. The verification system of Claim 11 wherein the first assumption is produced  
2 from the structure of the first property.

1 13. The verification system of Claim 12 further comprising:

2 means for propagating the first assumption according to a second  
3 property to generate a second assumption; and

4 means for producing, for a model, a transition relation that includes the  
5 reduced next state function.

- 1 14. The verification system of Claim 13 wherein the second property is a sub-  
2 property of the first property.
- 1 15. The verification system of Claim 14 wherein the first assumption is  
2 propagated only one transition stage to generate the second assumption.
- 1 16. A verification system comprising:  
2 a recordable medium to store executable instructions;  
3 a processing device to execute executable instruction; and  
4 a plurality of executable instructions to cause the processing device to:  
5 produce, from a first property, a first assumption including a first state  
6 predicate;  
7 produce, for a model, a first transition relation that includes the first state  
8 predicate; and  
9 reduce the first transition relation according to the first assumption.
- 1 17. The verification system of Claim 16 wherein the first assumption is produced  
2 from the logical structure of the first property.
- 1 18. The verification system recited in Claim 17, the plurality of executable  
2 instructions further comprising instructions to cause the processing device to:  
3 propagate the first assumption to generate a second assumption  
4 according to a second state predicate.
- 1 19. The computer software product recited in Claim 18 wherein the second  
2 property is a sub-property of the first property.